OBSERVING THE STANDARDS OF MATHEMATICAL PRACTICE IN K-12 CLASSROOMS

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FIST-TO-FIVE

ACTIVITY

Sheila drinks ¾ of a cup of water for every mile she hikes. Her water bottle holds 5 cups of water. How far can she hike before her water runs out?

Be ready to show and/or explain your thinking.

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning

1. Make sense of problems and persevere in solving them
6. Attend to precision

2. Reason abstractly and quantitatively

3. Construct viable arguments and critique the reasoning of others

Reasoning and explaining

4. Model with mathematics

5. Use appropriate tools strategically

Modeling and using tools

7. Look for and make use of structure.

8. Look for and express regularity in repeated reasoning.

Seeing structure and generalizing

GETTING TO KNOW THE SMP

1
SMP

- **Read the Standards for Mathematical Practice Individually, highlighting the verbs throughout.**

- **Discuss the Standards for Mathematical Practice as a table group**

- **Create a non-linguistic representation of the Mathematical Practice on chart paper and be prepared to share with the rest of the group.**

At a staff meeting or PLC you could add in..

- **Create a chart that representations the teacher actions and student actions you would observe if this Mathematical Practice was present in instruction.**

MATH COMMON CORE STANDARDS

#1

MAKING SENSE OF PROBLEMS AND PERSEVERE IN SOLVING THEM

When presented with a problem, I can make a plan, carry it out and evaluate its success.

#2

REASON ABSTRACTLY AND QUANTITATIVELY

I can take numbers and put them in a real world context. I can also take numbers out of context and work mathematically with them.

REFLECTION

How is the role of the teacher when implementing the Math Practices different than the *teacher's* role of the past?

What is the primary role of the student in implementing the Math Practices?

OBSERVATION TOOL #1 – COOPERATIVE LEARNING CARDS

Cooperative Learning Roles based upon Standards for Mathematical Practices

SMP #1

Make sense of problems and persevere in solving them

Mathematically proficient students:

- Explain what the problem means in my own words
- Persist in efforts to solve challenging problems.
- Continue to ask myself and others, "does this make sense?"

SMP #6

Attend to precision

Mathematically proficient students:

- Are clear and precise in their language and work(oral and written communication).
- Specify units of measure and label any diagrams to clarify meaning
- Justify the reasonableness of the solution.

OBSERVATION TOOL #1 – COOPERATIVE LEARNING CARDS

Think about how you could use these with a grade level team, full site staff, parent meeting, etc.

1. **Each person at the table pick out 1-2 MP cards.**
2. **Focus your observation ONLY on those 1-2 MP's.**

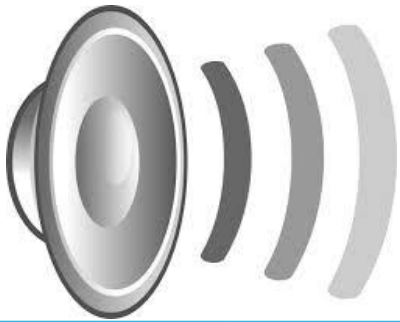
SEEING THE PRACTICES IN ACTION

K.NBT.1

Composing and Decomposing

How did this experience build your understanding of the **SMP** in Kindergarten?

What will a classroom embracing the **SMP** look like, sound like, feel like?



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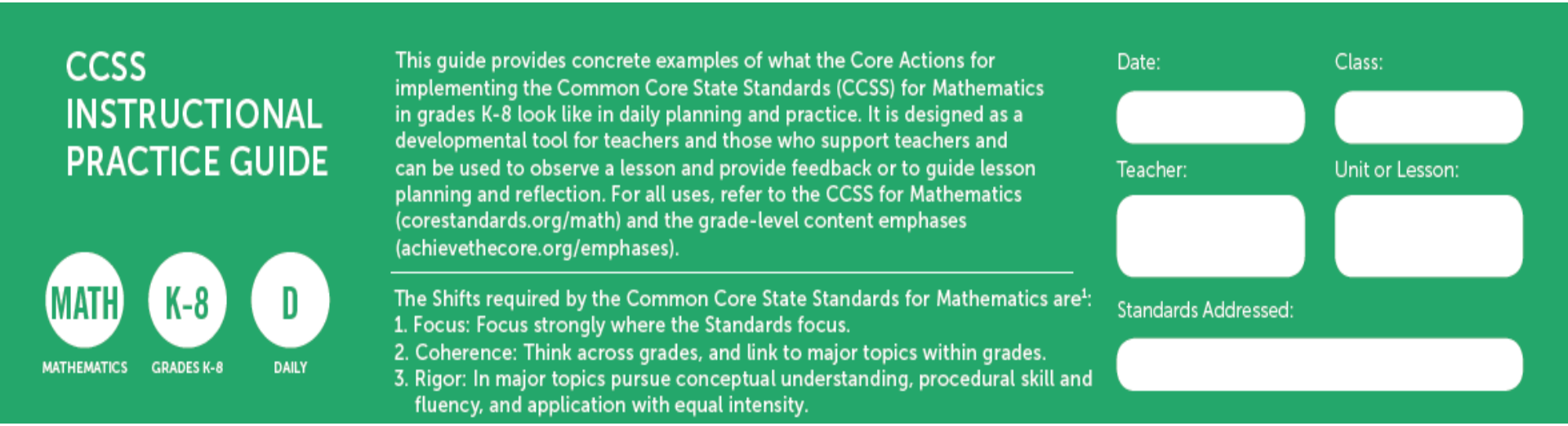
OBSERVATION TOOL #2 – INSTRUCTIONAL PRACTICE GUIDE

Think about how you could use these with a grade level team or full site staff



CORE ACTION 1: Ensure the work of the lesson reflects the shifts required by the CCSS for Mathematics.

CORE ACTION 2: Employ instructional practices that allow all students to master the content of the lesson.

CORE ACTION 3: Provide all students with opportunities to exhibit mathematical practices in connection with the content of the lesson.[3]

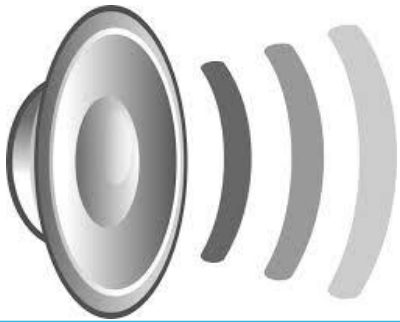
SEEING THE PRACTICES IN ACTION

4.NBT.B.6

Reasoning About Division

How did this experience build your understanding of the **SMP** in Fourth Grade?

What will a classroom embracing the **SMP** look like, sound like, feel like?



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OBSERVATION TOOL #3 – VIDEO EVIDENCE FORM

Think about how you could use these with a grade level team or full site staff meeting, etc.

VIDEO EVIDENCE FORM		
Math Practice # ____		
	Video Examples	
Verb	**Student Action**	**Teacher Action**
Explain		
Look for		
Analyze		
Plan		
Consider		

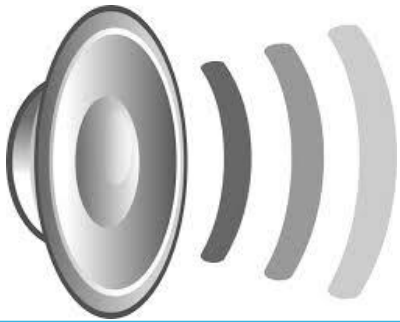
SEEING THE PRACTICES IN ACTION

7th Grade

Number Talk

How did this experience build your understanding of the **SMP** in Seventh Grade?

What will a classroom embracing the **SMP** look like, sound like, feel like?



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OBSERVATION TOOL #4–
DISTRICT OR SCHOOL WALK THROUGH-EVALUATION-TOOLS

Think about how you could use these with a grade level team or full site staff meeting, etc.

3b USING QUESTIONING AND DISCUSSION TECHNIQUES

Questioning and discussion are the only instructional strategies specifically referred to in the Framework for Teaching, a decision that reflects their central importance to teachers' practice. In the Framework, it is important that questioning and discussion be used as techniques to deepen student understanding rather than serve as recitation, or a verbal "quiz." Good teachers use divergent as well as convergent questions, framed in such a way that they invite students to formulate hypotheses, make connections, or challenge previously held views. Students' responses to questions are valued; effective teachers are especially adept at responding to and building on student responses and making use of their ideas. High-quality questions encourage students to make connections among concepts or events previously believed to be unrelated and to arrive at

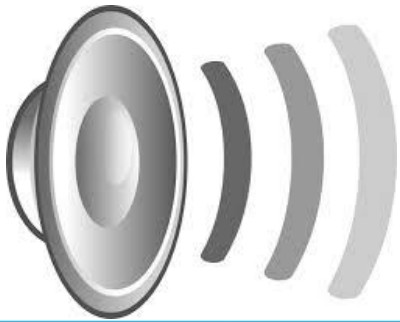
SEEING THE PRACTICES IN ACTION

HS.G-CO.C.11

Quadrilaterals

How did this experience build your understanding of the **SMP** in High School?

What will a classroom embracing the **SMP** look like, sound like, feel like?



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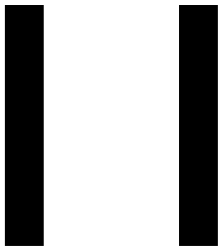
How can you support implementation of the Standards for Mathematical Practice at your school site or district?

What existing structures do you have in place to assist supporting teachers in their implementation of SMP?

SMP

MINDSET.....BELIEFS....

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REFLECTION